

Name _____ Period _____ Date _____

Part A

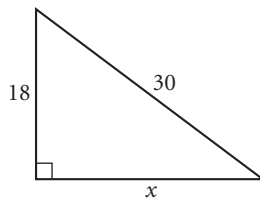
Complete each statement.

1. The _____ is the side opposite the right angle in a right triangle.
2. In a right triangle, if x and y are the lengths of the legs and z is the length of the hypotenuse, then _____.
3. In an isosceles right triangle, if a leg has length x , then the hypotenuse has length _____.
4. In a 30° - 60° - 90° triangle, if the hypotenuse has length y , then the shorter leg has length _____ and the longer leg has length _____.

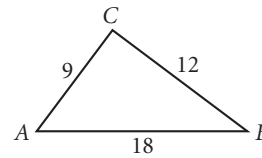
Part B

Solve each problem below. In Problems 1–3, all measurements are in centimeters.

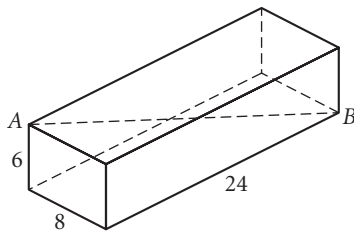
1. $x =$ _____



2. Is $\triangle ABC$ a right triangle?



3. $AB =$ _____

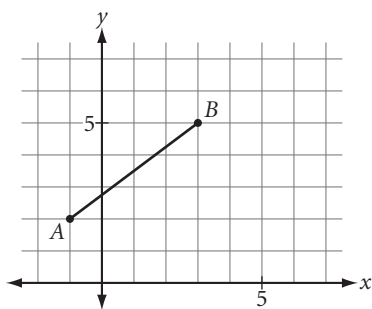


4. What is the length of the hypotenuse of a right triangle with legs of length 80 feet and 150 feet?
5. What is the length of the longer leg of a 30° - 60° - 90° triangle with a hypotenuse of length $24\sqrt{3}$ m?
6. If the area of a square is 225 cm^2 , what is the length of the diagonal?

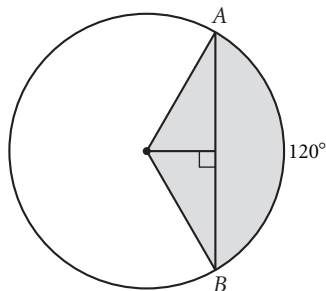
(continued)

Name _____ Period _____ Date _____

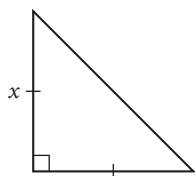
7. Determine whether $\triangle ABC$ with vertices $A(2, 4)$, $B(10, 2)$, and $C(7, 7)$ is scalene, isosceles, or equilateral.
8. Two jets pass directly over each other at 10 P.M. One jet is traveling south at 480 km/h; the other is traveling east at 900 km/h. How far apart are the two jets at midnight?
9. Find the area of an equilateral triangle with sides measuring 6 meters.
10. Find the circumference of a circle circumscribed about a square with perimeter 40 in.
11. Show \overline{AB} as the hypotenuse of a right triangle. Then find AB .



12. Find the area of the shaded region if $AB = 6\sqrt{3}$ cm.

**Part C**

Use algebra and the Pythagorean Theorem to prove the Isosceles Right Triangle Conjecture.

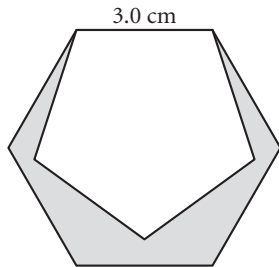


(continued)

Name _____ Period _____ Date _____

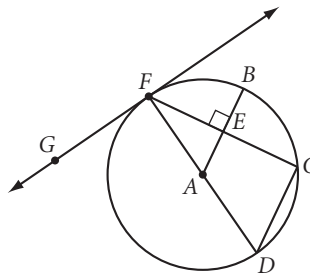
Mixed Review

- Find the surface area of a right cone with base radius 6 cm and height $6\sqrt{3}$ cm.
- The apothem of the regular hexagon shown below is about 2.6 cm. The apothem of the regular pentagon is about 2.0 cm. Find the area of the shaded region. Give your answer to the nearest tenth of a square centimeter.

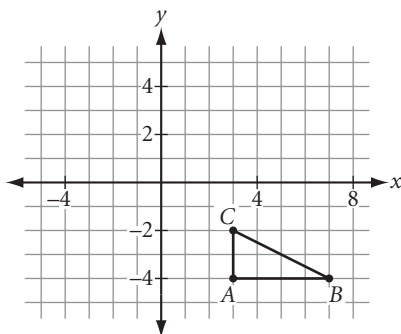


For Problems 3–6, use the diagram below. Circle A has tangent line \overleftrightarrow{GF} . $AF = 5$ cm and $CD = 5$ cm. Find each measure and explain your reasoning.

- $EF =$ _____
- $AE =$ _____
- $m\angle CFD =$ _____
- $m\widehat{FC} =$ _____



- A glide reflection is defined by the translation $\langle -5, 0 \rangle$ followed by a reflection across the x -axis. Apply the complete transformation to $\triangle ABC$ and graph the image.



- $\triangle EFG$, with $E(-1, 4)$, $F(1, 2)$, $G(3, 6)$, is drawn on heavy cardboard and then cut out. Find the coordinates of the point from which the triangle can be balanced. What is the name of this point of concurrency?